Appendix VII.

[Vide answer to starred question No. 1206 asked by Sri T. S. Ramaswami at the meeting of the Legislative Assembly held on 30th March 1961, page 463 supra.]

A resume of the salient features of the Report of the National Council of Applied Economic Research on the Techno-Economic Survey of Madras State.

The Techno-Economic Survey of Madras State conducted by the National Council of Applied Economic Research is an attempt to assess the development potential of the State in the context of the availability of resources and other related factors and to suggest on the basis of these findings, appropriate measures to step up the rate of growth of the economy through expansion and diversification of economic activities, so as to raise the standard of living of the people.

2. Madras State has a relatively diversified pattern of economic activity with a well developed agriculture, widespread industrial activity and good transport and communications. The characteristic feature of the economy, however, is the high pressure of population on limited resources which has led naturally to severe unemployment both in the rural and urban areas. The crux of the problem, therefore, is to diversify and expand economic activities in a suitable way so that not only unemployment is reduced to the minimum but new jobs are created at a high technological level so that the average per capita output of Rs. 227 (1956) which is lower than the All-India level of Rs. 261 (1956) is raised.

3. The development pattern in the future will necessarily be dominated by the growth of industries, as agriculture being already very well developed offers very little scope either for increasing productivity or for providing more employment. The advantages the State possesses with respect to industrialisation are availability of skilled labour and the aptitude to learn new skills, the existence of many large scale industries, large population providing a large market and a well ordered political system. Under-utilisation of existing industrial capacity must be remedied. In order to facilitate and speed up such industrial expansion, it is necessary to expand transport facilities and the availability of power. Thus, the strategy of action suggested by the National Council is to plan for the co-ordinated expansion of all the three sectors—primary, secondary and tertiary—with a definite and deliberate emphasis on the growth of industries.

4. It is with this development pattern in view, that the programme of action suggested for the next decade (1961-71) is made. It is assumed that Madras State will keep pace with the All-India rate of growth suggested in the Second Plan, i.e., doubling of National Income of 1956 by 1971. Taking the capital output ratio to be a little less than 3 : 1 suggested for All-India, because of the need of comparatively lower capital investment both in agriculture and industry, the total investment needed to double the State

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Income of Rs. 730 crores in 1956, will be of the order of Rs. 2,100 crores. As there is close resemblance between All-India and Madras in the pattern of economic activity, tertiary income may be assumed to increase at a slightly lower rate than total income (95 per cent an increase of Rs. 270 crores) leaving an increase of Rs. 463 crores to be obtained from the primary and secondary sectors.

5. Based on the above analysis of economic growth and the proportion in which the various sectors of economy have to contribute thereto, the Council has made the following important recommendations regarding the development of industry, agriculture and other sectors of the economy :—

6. *Programme of industrial development.*—According to the Council, the approach to the industrial growth for Madras should include a vigorous programme for the development of large scale industries. The Council feels that it is the relatively small number of large scale units in Madras that makes its industrial development compare very unfavourably with Bombay or West Bengal. The establishment of large units will not only serve as a nucleus from which improved technology will spread but will also help to develop other anciliary units. In the next five years, the report affirms, Madras can expect to have three such leaders : the Neyveli industrial complex comprising chemical and engineering industries; the Salem complex centred around iron, steel and aluminium industries; and the Tuticorin complex based on marine chemicals and fisheries. The Council has however emphasised that the development of large-scale industries should not be carried out to the exclusion of small-scale industries but rather that both small-scale and large-scale industry should grow side by side with the large-scale industry as the base.

7. Based on an analysis of the availability of mineral resources, skilled labour and existence of a large population which constitutes a growing market for consumer goods, the Council is of the view that emphasis should be laid more on the non-resource based industry. Unlike physical resource industries like textiles, sugar and oil, these industries, according to the Council, will increase income and employment directly and will open up scope for many anciliary industries. The Council therefore recommends both engineering (metal-based) and chemical industries specially. The development of physical resource based on consumer goods industries is also important because of their high employment potential.

8. *Engineering Industries.*—After technical appraisal, the Council has recommended the creation of additional capacity in Madras State for the following engineering goods industries :—

(1) Ball and roller bearings (one million units).

(2) Bolts, nuts and rivets (6,000 tons).

(3) Shot and chilled iron (1,000 tons).

(4) Tea processing machinery.

(5) Power station equipment.

(6) Industrial gas cylinders.

(7) Industrial blowers.

(8) Air compressors.

(9) Machine tools.

(10) Diesel engines (stationery).

(11) Power transformers (1 million KVA).

(12) Electric fans (1 lakh units).

(13) ACSR conductors (5,000 tons).

9. In addition to the above mentioned new units, the Council has suggested substantial expansion of capacity in the following engineering industries :—

(1) Bicycles.

(2) Machine screws.

(3) Railway wagons.

(4) Steel pipes and tubes.

(5) Structural fabrication.

(6) Metal containers.

(7) Sugar mill machinery.

(8) Automobiles and accessories.

(9) Pistons and piston rings.

(10) Power driven pumps.

(11) Dry batteries.

(12) Storage batteries.

(13) Galvanized and barbed wires.

(14) Textile machinery.

(15) Agricultural tractors.

(16) Enamel ware.

It has recommended doubling the installed capacity in respect of the following engineering industries :—

(1) Automobiles and trucks,
(2) Motor cycles,
(3) Vehicular type of diesel engines,
(4) Electric motors,
(5) Abrasives,
(6) Small tools, and
(7) Distribution transformers.

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10. According to the National Council, one of the weaknesses of the Engineering industry in the State is inadequacy of intermediate processing facilities such as foundries and forges. To overcome this obstacle to the growth of the engineering industries the Council has suggested the manufacture of grey iron castings, malleable iron castings, steel castings, steel forgings, steel press work, aluminium casting, electrical steel sheets, re-rolled steel, alloy, tools and special steel. The Council considers Salem to be the best location for rolling and re-rolling, Madurai for malleable iron castings, Coimbatore for grey iron castings and Madras for the rest of the items.

11. *Chemical and Allied Industries.*—The Council's recommendations in regard to chemical and allied industries include doubling the existing capacity of cement production by 1971 and increasing the installed capacity of the following articles :—

Two thousand tons of domestic and sanitaryware and tiles at Ranipet, Neyveli, etc., 2,000 tons of insulators at Neyveli; 25,000 tons of refractories, 350 tons of carborundum refractories and crucibles at Tiruchirappalli or Salem, 20,000 tons of sheet glass at Salem, 1,000 tons of neutral and Pyrex-glass at Madras and 350 tons of optical glass at Madras. It has suggested that the possibility of manufacture of calcium carbide from carbonised briquettes instead of charcoal and calcium carbonate from limestone needs further investigation.

12. Having regard to the rapid expansion in the country's requirements of caustic soda, the Council recommends doubling the capacity of the two caustic soda plants in Madras (The Mettur Chemicals and the Dhrangadhara Chemicals) giving a total installed capacity of 200 tons per day. The Council considers a soda ash plant (there is no factory producing this at present in the State) to produce 200 tons of soda ash per day to be very feasible.

13. Since Madras produces a large quantity of salt ,the Council suggests the establishment of a plant for extracting such chemicals as potassium chloride, bromide and gypsum from bittern (the thick liquor left behind after the salt crystals are separated from brine) with an annual capacity of utilising 60,000 tons of bitterns. The first plant with a capcity of 20,000 tons of bitterns is recommended to be set up at Tuticorin.

14. *Industries based on forest resources.*—The most important industrial possibilities based on resources available from the forests are pulp and paper, paper board, hard board, particle board and wattle bark extract. Having regard to the increasing demand for various varieties of paper, the Council is of the view that there is scope for making writing, printing and wrapping paper in the State. Based on the supply of bamboo, wattle, blue gum and sugarcane bagasse (waste paper as an alternative), a 15,000-ton plant for making wrapping paper at Mettur Dam, a 15,000-ton plant for the manufacture of rayon pulp and paper pulp at Bhavanisagar, a 25,000-ton plant for making printing and wrapping paper at Nelli-

kuppam or Neyveli and a 6,000-ton plant for paper board are recommended by the Council. With the availability of Urea, formaldehyde and phenol-formaldehyde from domestic sources, two plants for manufacturing particle board each with an annual capacity of 4,500 tons could be establised at Kodaikanal using wattle bark from the plantations in that area. According to the Council, there is scope for setting up two plants for the manufacture of hard board each with an annual capacity of 6,000 tons in the Nilgiris. To synchronise with the wattle bark which will be harvested from the new wattle plantations, two 4,500-ton annual capacity plants for manufacturing wattle bark extract are recommended by the Council either at the Nilgiris or in Kodaikanal.

15. *Other industries.*—In regard to sugar production, the Council recommends an additional crushing capacity of 15,000 tons per day (including 5,000 tons licensed during the Second Plan) to be distributed over 15 factories.

16. At the present level of sugar production, the Council considers it possible to set up distillation plant with a capacity for processing 20,000 tons of molasses a year which can supply the necessary raw materials for a plant each for producing PVC, ethylene and its derivatives, acetic acid and acetic anhydride. With the expansion of Sugar industry, further scope for the development of these chemical industries will also arise.

17. The Council recommends the establishment of a plant for producing gelatin to supply the proposed raw film factory at Ooty. It suggests a capacity of 5½ tons of ossein and 11 tons of dicalcium phosphate.

18. The Council considers that in the case of oil crushing, a further capacity for expansion exists, for even at the present level of output it will be possible to establish about 20 solvent extraction plants each with a capacity to process 50 tons of oil cake per day and 5 plants for crushing cotton seed with a capacity of 75 tons per day.

19. The Council recommends a plant to produce high quality hand-made paper from linters (which are available from textile mills) with a capacity of 90,000 lb. per year.

20. *Iron and Steel.*—After a careful examination of the economics of iron and steel production in the State, the Council recommends a capacity of 30,000 tons of pig iron at Salem and Coimbatore and a capacity of 200,000 tons of steel at Salem.

21. *Small-scale Industries.*—In regard to small-scale industries the Council is of the view that their importance lies in their large employment potential. But due emphasis needs to be laid on a gradual technological transformation in the industries.

22. On the basis of an evaluation of the existing resources and demand, the Council recommends a scheme to develop 42 small-team of extension officers and gramasevaks.

and an employment potential of 11,360. Important among these small-scale industries are leather goods, fruits and vegetable preservation, confectionery, hosiery and ready-made garments, agricultural implements, cycle parts and accessories, scientific instruments, textile mill parts, surgical instruments, radio accessories and parts, automobile parts, sports goods, etc.

23. The Report also recommends establishment of an Industrial Investment Trust to accept contributions from individuals for investing in profitable enterprises, an Industrial Consultants Organisation to make techno-economic evaluations of potential for industrial development and a consortium of various financial agencies to give financial help to new undertakings.

24. *Agriculture.*—Agriculture still being the most important occupation, contributing 45 per cent to State's income and engaging 60 per cent of total working force in 1956, has to be developed to the maximum extent possible. Its development is crucial in two ways :—(1) It has to feed not only the additional 12 million mouths in 1971 but has to meet the increasing demand for food arising from the growing urbanisation; (2) it has to provide the raw materials for a number of consumer goods industries like textiles, sugar, leather and vegetable oils whose growth is a *sine qua non* for providing employment to many. But the highly developed nature of agriculture with large area under irrigation and improved practices, offers little scope for further development except through more intensive cultivation. Changing the crop pattern to raise more of the high-value crops will also become necessary in future to bear the increasing cost of irrigation by the end of the IV Plan when the State would have tapped all its water resources. Various developmental measures to be taken in 1956–1971 (like use of improved seed, plant protection, etc.) is expected to raise the value of agricultural output by 67 per cent. Income from other primary activities like mining, fishing and animal husbandry, is also expected to grow more rapidly. In all, additional net primary output in 1971 may be Rs. 2,150 million, i.e., 65 per cent over 1956 level.

25. *Power.*—The improvement of the transport and power position becomes very necessary if the industrial programme recommended by the Council is to be successfully carried out. The power bottleneck poses a serious problem. The Council believes that for a State like Madras, power policy should be based upon creating surplus power rather than merely be content with catching up with the demand. The Council is of the view that notwithstanding the rapid generation of power in the III Plan, there is every possibility of a continuing and recurring deficit in power supply. Madras would start the III Plan with a heavy deficit of power and with a very large unsatisfied demand, the extent of which has been estimated at about 2,230 million units. At the end of the III Plan, this deficit seems likely to continue in the same magnitude. According to the Council, the demand for power would increase from 3,232 million units in 1959–60 to 4,776 million units in 1960–61 and

to 9,513 million units in 1965-66. In other words, the total demand will double itself in five years between 1960-61 and 1965-66. The development of power contemplated by the Madras State Electricity Board during the III Plan, i.e., from the present installed capacity of 530,000 KW to about 1 million KW excluding the 300,000 KW which Neyveli is expected to make available, will just enable the Madras Government to meet the additional requirements which arise out of the development of agriculture, industry, transport and so on. Unfortunately, even this rapid development may not enable the State Government to remove the present restrictions which are the result of deficit to the extent of 2,230 million units. The Council is of the view that the Government have to tackle the problem of meeting its power requirements by further investment in the III Plan, if possible, and by seeking to get additional power from the neighbouring States, or by establishing a nuclear power station in the quickest possible time.

26. *Transport*.—Transport facilities in Madras need to be strengthened very much in future because of the necessity to import many raw materials, coal, iron and steel to feed the non-resource based industries and also because industrial output from Madras is destined for markets all over India and outside India as well. The most important consideration is the physical availability and of time and regularity of the raw materials and semi-finished products required by industry. The objectives to be kept in view in expanding and improving the transport system are : (1) Improvement in railways particularly by strengthening the construction and eliminating breaks in gauges to provide cheaper access to semi-finished products of other States. The line capacity between Madras and Vijayawada needs urgent expansion. (2) Road construction and improvement of bridges to facilitate distribution of manufactured products to the North India markets. (3) Construction, modernisation and improvement of port facilities for both coastal and overseas maritime traffic. The Report recommends an investment outlay of Rs. 3,500 million for transport development for the period 1956-71.

27. The important problem being unemployment, the emphasis in all the developmental measures should be to open up as much of opportunities for new jobs as possible. It is found that the addition to man-power supply during the next 15 years will be of the order of 2·8 millions. The new jobs created during the same period if the proposed outlay of Rs. 20,000 million is invested, will be around 2 million. It is clear that the problem will continue to plague the economy even after 1971.

28. This vast development effort calls for planned needs, proper allocation of resources, correct phasing of expenditure, and co-ordination of development in all the sectors. This requires a careful study of the existing resources and improvement in planning techniques. The State Government must play a dominant role in promoting economic development not only by extending all facilities to private sector which has a crucial role to play in the

future but imposing on itself many activities which will strengthen the overhead facilities and provide a base of quick industrial growth. A State Development Agency has been suggested by the Council for co-ordinating the efforts of different departments, for disseminating information and giving guidance.

29. The programme of development envisaged during the next ten years in this report may now be summarised.

	Investment in crores of rupees.
Primary sector	213·4
Industry	370·6
Transport	282·0
Power	376·0
Housing, Education and Health ...	384·0
Total ...	1,626·0

This investment would create about 2 million additional jobs. It is expected that the value of net output will go up from Rs. 732 crores in 1956 to Rs. 1,465 crores and that *per capita* income would go up from Rs. 227 to 361 during the same period. The average productivity per worker is expected to go up from Rs. 1,300 to Rs. 1,700. It is believed that by 1971, Madras will be able to secure a substantial increase in the standard of living of its people and that the economy will generate a sufficient value of savings so as to sustain a fairly high rate of economic growth.

Appendix VIII.

[*Vide* answer to the starred question No. 1210 asked by Sri N. K. Palanisami at the meeting of the Legislative Assembly held on 30th March 1961, page 467 supra.]

Details of the Scheme.

1. *Objects.*—The main aims of the projects for the utilisation of idle man-power in rural areas is that work should become available to all who are willing to work and, secondly, all the available man-power should be used to the greatest extent possible in creating community assets. The programme should be implemented during a period of three months or 90 days from the middle of March to the middle of June.

Wages and incentives

2. Some inducement is necessary to make the unutilised rural manpower respond to a sense of collective responsibility. The State Development Committee which has considered the note prepared by the Planning Commission on the utilisation of idle manpower has been of the unanimous view that a successful programme can be